Letters

Website: **www.bmj.com**
Email: **letters@bmj.com**

Fluid resuscitation with colloid or crystalloid solutions

Editorial by Offringa and *Paper* p 235

Comparing different studies is difficult

EDITOR—The debate over giving crystalloids or colloids has been raging since the 19th century, when Cohnheim and Lichtheim found gastric mucosal oedema in patients who had been resuscitated with saline and Starling suggested that albumin could prevent oedema.[1 2] The meta-analysis by Schierhout and Roberts, which does not support the continued use of colloids for volume replacement in critically ill patients, makes a useful contribution to this debate but does not settle it.[3]

A recent review by Hankeln and Beez comes to the opposite conclusion—that colloids are more effective than crystalloids for optimising physiological variables related to flow in critically ill patients and maintaining the delivery of oxygen to the tissues[2]; they say that this is related to the persistence of colloids in the circulating plasma volume, as opposed to their distribution throughout the total body water.[4] Although colloids are more expensive than crystalloids, their effect on the circulating volume lasts much longer. The real problem is the difficulty in comparing different studies, because of differences in case mix, resuscitation protocols, and volumes and types of fluids used and, therefore, in making firm conclusions about patient outcome.

In all cases of hypovolaemia the main priority is to restore the circulatory volume as quickly and efficiently as possible to prevent impairment of organs due to ischaemia and hypoxaemia.[5] Maybe we will never have a definitive answer to this question, in which case many practitioners will continue to administer a judicious mix of both types of fluid according to their own experience.

J Watts *Consultant anaesthetist*
Burnley General Hospital, Burnley BB10 2PQ

1 Watts JC, McConachie IM. A history of the use of steroids in septic shock. A time for re-appraisal. *Int J Intensive Care* 1995;2:22-6.
2 Hankeln KB, Beez M. Haemodynamic and oxygen transport correlates of various volume substitutes in critically ill in-patients with various aetiologies of haemo-dynamic instability. *Int J Intensive Care* 1998;5:8-14.
3 Schierhout G, Roberts I. Fluid resuscitation with colloid or crystalloid solutions in critically ill patients: a systematic review of randomised trials. *BMJ* 1998;316:961-4. (28 March.)
4 Astiz ME, Galera-Santiago A, Racrow E. Intravascular volume and fluid therapy for severe sepsis. *New Horizons* 1993;1:127-35.
5 Hillman K, Bishop G, Bristow P. Fluid resuscitation. *Curr Anaes Crit Care* 1996;7:187-91.

Newer synthetic colloids should not be abandoned

EDITOR—In their meta-analysis of trials that compared colloids with crystalloids in critically ill patients Schierhout and Roberts found increased mortality in patients treated with colloids and concluded: "this systematic review does not support the continued use of colloids for volume replacement in critically ill patients."[1]

Their finding of increased mortality in patients treated with colloid is not surprising, since of the 26 studies reviewed, 12 used albumin solutions, eight low molecular weight dextrans, and three gelatin solutions. It is now well recognised that critically ill patients have increased capillary permeability, which allows molecules such as albumin and water to pass into the interstitial space, thus compromising tissue oxygenation.[2] For example, every 1 g of albumin that leaks from capillary to interstitium is accompanied by 18 g of water. This condition is termed clinical capillary leak syndrome and represents a stage through which all patients pass in the development of systemic inflammatory response syndrome and organ failures. For this reason, volume replacement treatments based on low to medium molecular weight colloids (for example, gelatins and albumin) which do not remain in the vascular space will be ineffective and may worsen interstitial oedema.

The "colloids" in the studies reviewed ranged in molecular weight from 30 000 Da to over 1×10^6 Da, and their ability to remain in the vascular compartment, particularly during periods of capillary leak, varies.[3] Gelatins, for example, are lost from the circulation within an hour or two, while some hydroxyethyl starches with a large molecular weight are retained for 48 hours. Comparative studies of albumin with hydroxyethyl starches with a molecular weight of around 250 000 show the hydroxyethyl starches to be beneficial in terms of haemodynamic variables, oxygen delivery, and non-specific inhibition of the acute inflammatory response.[4 5]

The authors are correct in their recommendation for randomised controlled trials of colloids in patients at risk of clinical capillary leak syndrome and systemic inflammatory response syndrome. But it would be a pity if their conclusions, which are based on an uncritical amalgamation of studies of ineffective colloids, lead to the abandonment of the use of newer synthetic colloids which are well retained by the leaky vasculature in critically ill patients. Such an interpretation would encourage excessive administration of salt and water, leading to fluid overload, interstitial oedema, poor oxygenation, and organ failure.

Peter Gosling *Consultant clinical biochemist*
Department of Clinical Biochemistry, University Hospital Birmingham NHS Trust, Birmingham B29 6JD

1 Schierhout G, Roberts I. Fluid resuscitation with colloid or crystalloid solutions in critically ill patients: a systematic review of randomised trials. *BMJ* 1998;316:961-4. (28 March.)
2 Zikria BA, Bascom JU. Mechanisms of multiple organ failure. In: Zikria BA, Oz MO, Carlson RW, eds. *Reperfusion injuries and clinical capillary leak syndrome.* New York: Futura, 1994:443-92.
3 Traylor RJ, Pearl RG. Crystalloid versus colloid: all colloids are not created equal. *Anesth Analg* 1996;83:209-12.
4 Schmand JF, Ayala A, Morrison MH, Chaudry IH. Effects of hydroxyethyl starch after trauma-hemorrhagic shock: restoration of macrophage integrity and prevention of increased interleukin-6 levels. *Crit Care Med* 1995;23:806-14.
5 Boldt J, Heesen M, Muller M, Pabsdorf M, Hempelmann G. The effects of albumin versus hydroxyethyl starch solution on cardiorespiratory and circulatory variables in critically ill patients. *Anesth Analg* 1996;83:254-61.

One conclusion could be that hypertonic saline is better than colloids in trauma

EDITOR—Schierhout and Roberts's meta-analysis of fluid resuscitation with colloid or crystalloid solutions in critically ill patients is inaccurate.[1] They quote four trials with adequate concealment and say that there was an increase in the absolute risk of death of 4% with colloids.

Advice to authors

We prefer to receive all responses electronically, sent either directly to our website or to the editorial office as email or on a disk. Processing your letter will be delayed unless it arrives in an electronic form.

We are now posting all direct submissions to our website within 72 hours of receipt and our intention is to post all other electronic submissions there as well. All responses will be eligible for publication in the paper journal.

Responses should be under 400 words and relate to articles published in the preceding month. They should include ≤ 5 references, in the Vancouver style, including one to the BMJ article to which they relate. We welcome illustrations.

Please supply each author's current appointment and full address, and a phone or fax number or email address for the corresponding author. We ask authors to declare any conflicts of interest.

Letters will be edited and may be shortened.

www.bmj.com
letters@bmj.com

Their summary table lists four trials with a concealment of 3. We assume that these are the four trials in question. Three of these trials compared colloid with hypertonic saline and account for 39 deaths of the total difference of 50 deaths (78%) between colloids and crystalloid. We also note that these three papers are from trauma studies. It thus may be more accurate to conclude that hypertonic saline (7.5%) is better in trauma than colloids.

Andrew Makin *Specialist registrar in anaesthetics*
Louie Plenderleith *Consultant anaesthetist*
Western Infirmary, Glasgow G11 6NT

1 Schierhout G, Roberts I. Fluid resuscitation with colloid or crystalloid solutions in critically ill patients: a systematic review of randomised trials. *BMJ* 1998;316:961-4. (28 March.)

Eight studies should have been excluded

EDITOR—In their systematic review Schierhout and Roberts make several assertions that cannot be justified by their evidence, and their conclusions are unwarranted.[1]

To draw valid conclusions from data reported in a variety of studies, like must be compared with like. Studies that include uncommon or experimental treatments should not be used to make inferences about conventional practice. Of the 19 trials that met the criteria for eligibility for analysis, five involved the use of hypertonic solutions. In these five trials mortality was 36% (90/250) among patients who received colloids and 25% (51/201) among patients who received crystalloids. Among the remaining studies (in which the resuscitative fluids more closely reflected those in clinical use) mortality was 18% (78/435) for colloids and 16% (67/429) for crystalloids (not significantly different). The study by Goodwin et al in patients with burns is the only trial in which any trend towards increased mortality in patients receiving colloid was reported.[2] Significant increases in lung water were found in the colloid group, but pulmonary capillary wedge pressure, although measured, was not used to guide resuscitation.

Only five studies compared commonly used resuscitation fluids (Metildi et al used 5% albumin solution,[3] not 50% salt-poor albumin as reported by Schierhout and Roberts). Of these studies, three were of surgical patients; mortality was low but favoured the use of colloids as a resuscitative fluid (3% mortality (1/33) for colloids *v* 7% (3/42) for crystalloids). The remaining two studies were of seriously ill patients receiving intensive care, who are pathophysiologically distinct. Despite this, these studies showed opposite outcomes. Rackow et al found a mortality of 61% (11/18) for colloids and 75% (6/8) for crystalloids.[4] Metildi et al found a mortality of 60% (12/20) for colloids and 46% (12/26) for crystalloids.[3] In Metildi et al's study, however, the proportion of patients without sepsis was higher in the crystalloid group; 20% (4/20) in the colloid group died within 48 hours of entry, compared with 12% (3/26) in the crystalloid group. Patients in critical care units have a wide range of conditions, and studies of mortality in small numbers of patients are misleading if they do not include data allowing comparison of different treatment groups in terms of severity of illness

Of the 19 trials quoted, at least eight were in unusual groups or of unusual treatments. These eight studies should not have been included in the analysis.

G R McAnulty *Locum consultant in anaesthesia and intensive care*
R M Grounds *Consultant in anaesthesia and intensive care*
Department of Anaesthesia, St George's Hospital, London SW17 0QT

1 Schierhout G, Roberts I. Fluid resuscitation with colloid or crystalloid solutions in critically ill patients: a systematic review of randomised trials. *BMJ* 1998;316:961-4. (28 March.)
2 Goodwin CW, Dorethy J, Lam V, Pruitt BA Jr. Randomized trial of efficacy of crystalloid and colloid resuscitation on hemodynamic response and lung water following thermal injury. *Ann Surg* 1983;197:520-31.
3 Metildi LA, Shackford SR, Virgilio RW, Peters RM. Crystalloid versus colloid in fluid resuscitation of patients with severe pulmonary insufficiency. *Surg Gynecol Obstet* 1984;158:207-12.
4 Rackow EC, Falk JL, Fein IA, Siegel JS, Packman MI, Haupt MT, et al. Fluid resuscitation in circulatory shock: a comparison of the cardiorespiratory effects of albumin, hetastarch, and saline solutions in patients with hypovolemic and septic shock. *Crit Care Med* 1983;11:839-50.

Use of dextran-70 for fluid resuscitation has been dying out

EDITOR—Schierhout and Roberts have reviewed studies of different colloids compared with crystalloids in critically ill patients.[1] It is inappropriate to group all the colloids in one category. Although the authors accept that colloids and crystalloids have different effects on a range of important physiological variables, they presume that individual differences between different colloids are of no clinical importance.

Human albumin, plasma, starch, dextran, and modified gelatin have differing pharmacokinetics and pharmacodynamics.[2] Dextran-70 affects coagulation by a diminution of platelet adhesiveness, depression of factor VIII activity, and increased fibrinolysis.[2 3] In the studies quoted by Schierhout and Roberts, use of dextran-70 is clearly associated with a higher mortality. In the studies specifically comparing dextran-70 with crystalloids, 96 of 351 patients who received dextran-70 died, compared with 56 of 301 who received crystalloids. The difference is clinically apparent and significant when analysed with Student's *t* test ($P < 0.01$). On the other hand, in the studies that compared other colloids with crystalloids, 72 of the 304 who received colloids died, compared with 61 of the 319 who received crystalloids. This difference is not significant. We did not include the study by Tølløsfrud et al in the above analysis because they included dextran-70 and other colloids in one group, and compared them with crystalloids.[4]

Use of dextran-70 for fluid resuscitation has gradually been dying out and largely replaced by use of other fluids. In our clinical practice we use a mix of crystalloids, starch, or gelatin solutions followed by packed cells and other blood products if necessary. We believe that our practice reflects the current British use of fluids during resuscitation.

Perhaps the only interpretation one can draw from this review is that use of dextran-70 for fluid resuscitation in critically ill patients is associated with a higher mortality than use of other colloids or crystalloids. Future studies should focus not only on individual fluids but also on the timing of resuscitation and targets set for cardiovascular variables during resuscitation.

Pramod P Bapat *Locum consultant*
Geoff J Raine *Senior registrar*
Department of Anaesthesia and Intensive Care, West Middlesex University Hospital, Isleworth, Middlesex TW7 6AF

1 Schierhout G, Roberts I. Fluid resuscitation with colloid or crystalloid solutions in critically ill patients: a systematic review of randomised trials. *BMJ* 1998;316:961-4. (28 March.)
2 Salmon JB, Mythen MG. Pharmacology and physiology of colloids. *Blood Rev* 1993;7:114-20.
3 Aberg M, Hedner U, Bergentz SE. Effect of dextran on factor VIII (antihemophilic factor) and platelet function. *Ann Surg* 1979;189:243-73.
4 Tølløsfrud S, Svennevig JL, Breivik H, Kongsgaard U, Øzer M, Hysing E, et al. Fluid balance and pulmonary functions during and after coronary artery bypass surgery: Ringer's acetate compared with dextran, polygeline or albumin. *Acta Anaesthiol Scand* 1995;39:671-7.

Conditions and patient groups were too heterogeneous to allow meaningful comparisons

EDITOR—In their systematic review about fluid resuscitation with crystalloids or colloids in critically ill patients, Schierhout and Roberts conclude that the use of colloids is associated with a 4% absolute increase in mortality and that, as colloids are also considerably more expensive than crystalloids, they should no longer be used outside randomised controlled trials.[1] This conclusion is flawed and is not supported by their analysis.

Firstly, the definitions of crystalloid and colloid are far too loose, and invalid assumptions about the equivalence of different fluid preparations have been made. Included in the crystalloid treatment arm are hypertonic saline solutions (four studies); isotonic, hypotonic, or unspecified solutions (21 studies); and Ringer's solution with 3.5% gelatin (one study). Included in the colloid arm are albumin solutions (12 studies), dextran solutions (nine studies), gelatin solutions (three studies), starch solutions (five studies), and whole blood (one study); many studies used mixtures of colloids. These groups are far too heterogeneous to allow a meaningful comparison.

The patient populations are also widely disparate, and the authors seem to have ignored the influence that different strategies for giving fluid may have had. A recent postal survey of British intensive care units showed that dextran solutions are almost never used,[2] and a German survey reported that $< 1\%$ of units ever used dextran solutions and that $< 2\%$ used albumin solutions.[3] This suggests that the practice described in the studies in this analysis is not relevant to practice in Europe today.

Nearly all the studies included in the mortality analysis had low mortality and wide confidence intervals. Not surprisingly,

the cumulative analysis also has a confidence interval spanning unity (0.98 to 1.45). Despite this, the authors are sufficiently confident to conclude that colloids should no longer be used routinely rather than accepting that the true result of their analysis is uncertainty. This paper exhibits all the worst abuses of evidence based medicine. It is written without clinical insight into the subject being considered, and the results have been used to produce a sweeping generalisation, which is scientifically inept. We are concerned that such a flawed undertaking should have been supported by the Intensive Care National Audit and Research Centre and paid for with public funds from the NHS R&D Programme.

D L A Wyncoll *Specialist registrar in intensive care*
Royal Brompton Hospital, London SW3 6NP

R J Beale *Consultant intensivist*
A McLuckie *Consultant intensivist*
Guy's Hospital, London SE1 9RT

1 Schierhout G, Roberts I. Fluid resuscitation with colloid or crystalloid solutions in critically ill patients: a systematic review of randomised trials. *BMJ* 1998;316:961-4. (28 March.)
2 Kapila A, Waldmann CS, Unclos DR, Addy EV. Survey of colloid usage in British intensive care units. *Clin Intensive Care* 1995;6:A201.
3 Boldt J, Lenz M, Kumle B, Papsdorf M. Volume replacement strategies on intensive care units: results from a postal survey. *Intensive Care Med* 1998;24:147-51.

Virtually identical article had appeared in Cochrane Library

EDITOR—I read the meta-analysis by Schierhout and Roberts[1] with a sense of déjà vu as a virtually identical article had appeared in the Cochrane Library.[2] Acknowledgment of the identical nature of the two articles would have saved me reading what I had already read and would, no doubt, prevent unnecessary requests for reprints by other parties. I am disappointed that the article should appear in the *BMJ* without obvious and specific acknowledgment that it had already been published in the Cochrane Library.

A P Corder *Consultant surgeon*
Hereford Hospitals NHS Trust, County Hospital, Hereford HR1 2ER

1 Schierhout G, Roberts I. Fluid resuscitation with colloid or crystalloid solutions in critically ill patients: a systematic review of randomised trials. *BMJ* 1998;316:961-4. (28 March.)
2 *The Cochrane Library* [database on CD ROM]. Cochrane Collaboration; 1998, Issue 1. Oxford: Update Software, 1998. (Updated quarterly.)

Authors' reply

EDITOR—Several of the correspondents interpreted our data in different ways, and in some cases this involved a reanalysis of the data. We believe that this is a major strength of systematic reviews. Because the reviews make explicit what the data are, including a full description of the participants in the trials, the interventions, and the outcomes, clinicians are ideally placed to make their own judgments about what they consider that the data mean.

As Watts notes, the colloid versus crystalloid debate has raged for nearly a century. The fact that the American College of Surgeons recommends the use of crystalloid in the management of trauma in preference to colloid in its recent guidance on advanced trauma life support implies that this is still the level of debate.[1] Because we made the nature of the colloid explicit in our review the debate may now progress to the effectiveness of specific colloids, and reviews of this nature are currently being prepared by the Cochrane Injuries Group.

We note with concern the mechanisms outlined by Gosling—in particular, the propensity of albumin to pass into the interstitial space, where it may compromise tissue oxygenation. Albumin is widely used, although the evidential basis for its use has yet to be defined.

Although it was stated in the methods section and obvious from the table, several correspondents (Makin et al and McAnulty et al) failed to understand that trials were included only if the treatment (colloid) group differed from the comparison group only in the treatment of interest. Trials comparing colloid in hypertonic crystalloid with hypertonic crystalloid alone are unconfounded trials of the addition of colloid. Any effect of the hypertonic crystalloid would be produced in both the treatment and comparison arms, and any difference in mortality would thus be attributed to the colloid or to the play of chance.

Wyncoll et al claim that the trials included in our review are not relevant to today's practice. The lack of contemporary trials is not a weakness of our review but a weakness of the evidential basis of intensive care medicine. If relevant studies had been conducted we included them. What our review has shown is the dearth of properly controlled evaluations on which to base current intensive care. We agree with Wyncoll et al that our analysis shows uncertainty about the use of colloids, and, given this uncertainty, we reassert our conclusion that further trials assessing the effectiveness of colloids (including the newer synthetic colloids) are urgently required. Not to act on this uncertainty risks the long term abuse of public funds through the daily use of more costly and possibly more harmful resuscitation regimens.

Finally, we wish to clarify the contribution of the Intensive Care National Audit and Research Centre to our review. Because of the centre's handsearching activities, a large number of previously inaccessible randomised trials are now available to those interested in the evidential basis of intensive care medicine. This is an important contribution and deserves to be acknowledged. However, the centre is no more responsible for the conclusions of our review than is the National Library of Medicine for providing access to randomised trials on Medline.

G H Schierhout *Lecturer in epidemiology*
Ian Roberts *Director, child health monitoring unit*
Department of Epidemiology and Public Health, Institute of Child Health, University College London Medical School, London WC1N 1EH
gschierh@iafrica.com

1 American College of Surgeons Committee on Trauma. *Advanced trauma life support for doctors. Instructors' course manual 1997.* Chicago: ACS, 1997.

The hymen is not necessarily torn after sexual intercourse

EDITOR—We agree with Paterson-Brown that education about the hymen is urgently needed.[1] However, there is no evidence from the study by Emans et al[2] that the "appearances [of hymens] relate to tampon use," only that speculum examinations were rated as easy in 56% of the examinations of non-sexually active tampon users compared with 26% of the non-sexually active pad users and 81% of the sexually active females studied.

Furthermore, an opportunity to educate inexperienced health professionals regarding the elasticity of the postpubertal hymen has been missed; the study by Emans et al found that 19% of the sexually active postpubertal females had no visible abnormalities of the hymen. This has long been appreciated by forensic physicians who give evidence in court regarding serious sexual assaults. The practice of reconstructing "the hymens of adolescent girls who are no longer virgins but wish to appear so"[3] only serves to perpetuate the myth that the hymen is necessarily torn after sexual intercourse.

Deborah J Rogers *Honorary senior lecturer*
Margaret Stark *Honorary senior lecturer*
Forensic Medicine Unit, St George's Hospital Medical School, London SW17 0RE

1 Paterson-Brown S. Should doctors reconstruct the vaginal introitus of adolescent girls to mimic the virginal state? Commentary: Education about the hymen is needed. *BMJ* 1998;316:461. (7 February.)
2 Emans SJ, Wood ER, Allred EN, Grace E. Hymenal findings in adolescent women: the impact of tampon use and consensual sexual activity. *J Pediatr* 1994;125:153-60.
3 Logmans A, Verhoeff A, Bol Raap R, Creighton F, van Lent M. Should doctors reconstruct the vaginal introitus of adolescent girls to mimic the virginal state? Who wants the procedure and why. *BMJ* 1998; 316:459-60. (7 February.)

Communication among health professionals

Poor communication puts patients at risk

EDITOR—Gosbee's editorial on communication among health professionals will hardly surprise anyone working in the health service,[1] and his conclusions are certainly borne out by our recent experience, despite assertions by Kozak et al that doctors can communicate effectively on paper.[2]

As part of the continuing post-marketing surveillance of omeprazole we have been tracing patients from this cohort who have moved since enrolment; we have used a postal questionnaire to ask their present general practitioners for information on morbidity. Several general practitioners responded and expressed their willingness to cooperate, but stated that they were unable to help, as they could not decipher notes written by the patient's previous general practitioner.

Having just completed a review of over 3000 patient notes, it is clear that these are not isolated cases. They are symptomatic of

the failure of the present system of record keeping in primary care to accurately transfer information to subsequent practitioners. The frustration to medical researchers and the repetition of unnecessary investigations is wasteful but the consequences of this failure for patients could be major. The situation has been improved by investment in information technology in many practices, and voice recognition software may hold promise for the future. However, computer records are only as good as the information put into them. While they are less susceptible to misinterpretation, they are often incomplete and unreliable[3] and frequently are not printed out and transferred with the rest of the patient's records.

We agree with Coiero and Tombs that doctors should get more training in the use of information technology.[4] Progress has been made in training doctors to communicate with their patients. Perhaps now the emphasis should more widely encompass communication between clinicians.

Ros Salter* *Research associate*
Paul Brettle* *Research associate*
F D R Hobbs *Professor*
Department of General Practice, Medical School, University of Birmingham, Birmingham B15 2TT

M J S Langman* *Professor*
Queen Elizabeth Hospital, Birmingham B15 2TH

*RS, PB, and ML are part of the Post-Marketing Surveillance Group, which receives funding from Astra Pharmaceuticals.

1 Gosbee J. Communication among health professionals. *BMJ* 1998;316:642. (28 February.)
2 Kozak EA, Dittus RS, Smith WR, Fitzgerald JF, Langfield CD. Deciphering the physician note. *J Gen Intern Med* 1994;9:52-4.
3 Hobbs FDR, Parle JV, Kenkre JE. Accuracy of routinely collected clinical data in acute medical admissions to hospital. *Br J Gen Pract* 1997;47:439-40.
4 Coiera E, Tombs V. Communication behaviours in a hospital setting: an observational study. *BMJ* 1998;316:673-6. (28 February.)

Message pagers may improve communication

Editor—Coiera and Tombs discuss communication behaviours in hospital settings,[1] a topic important to many junior doctors. In their discussion, however, they failed to mention the importance of two recent changes in hospital working practices which have contributed to an increase in the paging of junior doctors.[2]

The switch to primary nursing, with its objectives of improving the accuracy of communication as well as increasing accountability, often results in increased communication between doctors and nurses; each primary nurse communicates directly with the doctor about the doctor's patients. Previously this information was more likely to be amassed and delivered all at one time by or to a nurse in charge. The second change in working practice is the demise of the ward doctors who spent the bulk of their time on one ward. This has arisen partially as result of increased pressure on beds and partially subsequent to the increased specialisation of wards and the training requirements of junior doctors. This results in increased paging due to the absence of the doctor from the ward, and also militates against the development of trusting relationships between health professionals, which results in the "just to let you know" calls that are used to dispatch responsibility.

A method of communication which is exploited more often by senior doctors is the message pager. This has the advantage of allowing the sender to indicate the level of urgency of the call and the time and mode of response required, while being less disruptive to the receiver and permitting a range of response options. Sadly, it is perceived by many healthcare trusts as being an expensive option, and in my experience often has to be purchased by the individual. The alarming inefficiency of communication demonstrated by this study shows this up as an expensive and potentially dangerous false economy.

Helen Crimlisk *Senior registrar in psychiatry*
Bethlem Royal Hospital and Maudsley Hospital, London SE5 8AZ

1 Coiera E, Tombs V. Communication behaviours in a hospital setting: an observational study. *BMJ* 1998;316:673-6. (28 February.)
2 Downie R. *Patterns of hospital medical staffing: overview*. London: HMSO, 1991.

Who decides whether the patient is mentally incapacitated?

Editor—Gadd highlighted that patients have the right under common law to make advanced refusals, while they have the capacity to do so, of treatments when incapacitated.[1] However, the case laws on which this right is based also illustrate the complexities in judging the patient's mental capacity.

In Re T the Court of Appeal held that an advanced written refusal of blood transfusion by a mentally normal pregnant woman requiring a caesarean section was invalid.[2] This was because she might have been influenced by her mother, who was a Jehovah's Witness, and because it was unclear whether she had intended to refuse all blood transfusions or only those that were not necessary to keep her alive. This case was in sharp contrast to that of Re C, in which a chronic schizophrenic in Broadmoor Hospital with gross grandiose delusions was held to be mentally competent to give advanced refusal to amputation of his gangrenous infected leg.[3] This was because the patient was judged to be able to comprehend and retain treatment information on amputation, to believe it in his own way, and to weigh that information, balancing the risks and benefits.

It is also clear from Re C that a patient may possess capacity to consent to or refuse one treatment but at the same time lack capacity for consenting to another treatment. The proposals in the green paper "Who decides?"[4] of putting advanced directives or continuing power of attorney on a statutory basis would work in practice only if the difficult question of who decides the patient's capacity is addressed. Patients may revoke their advanced directives at any time and may do so while in the consulting room. Doctors would have the unenviable complex tasks of assessing the validity of the patient's advanced directives and their past and current revocations against every proposed treatment. Although the Law Commission has proposed a statutory test and a code of practice for assessing capacity,[5] uncertainties and disputes about patients' capacity are inevitable.

Wai-Ching Leung *Senior registrar in public health medicine*
Department of Public Health, Sunderland Health Authority, Sunderland SR3 4AF

1 Gadd E. Changing the law on decision making for mentally incapacitated adults. *BMJ* 1998;316:90. (10 January.)
2 Re T (Adult: refusal of treatment) [1992] 4 All ER 649.
3 Re C (Adult: refusal of treatment) [1994] 1 All ER 819.
4 Lord Chancellor's Department. *Who decides? Making decisions on behalf of mentally incapacitated adults*. London: HMSO, 1997.
5 Law Commission. *Mental incapacity*. London: HMSO, 1995.

Topical NSAIDs are better than placebo

Safety, efficacy, and therapeutic role of NSAIDs must be clarified

Editor—Moore et al concluded in their study that topical non-steroidal anti-inflammatory drugs are better than placebo in acute and chronic musculoskeletal pain.[1] Does this help to define their role in practice?

While we accept that these agents are better than placebo (this is considered during drug licensing), this does not help to decide how clinically effective they are. To define a therapeutic role for these preparations[2] we need comparisons with other interventions, such as oral non-steroidal anti-inflammatory drugs, topical rubefacients, or paracetamol. Of the 87 trials reviewed by Moore et al only five compared topical with oral non-steroidal anti-inflammatory drugs, and none had adequate design or power to enable comparison.

We are also concerned about the methodology used in this review. Moore et al conclude that the trials reviewed were of a good quality. We recently reviewed this area and found that many trials had poor methodology, low numbers of patients, and short durations of treatment.[3] The quality analysis used by Moore et al is simplistic and may not fully evaluate the quality of the studies. We do, however, recognise the need to use some objective quantification of quality.

Secondly, combining results from different studies of patients with varied musculoskeletal conditions may introduce errors, and a reliable meta-analysis of these agents could be difficult.[4] One of the reasons for this is that the heterogeneity of conditions being studied makes it difficult to compare one study with another. We are not sure whether using the random effects model compensates sufficiently.

Thirdly, the authors were unable to eliminate positive publication bias. As drug companies were asked to volunteer their

trial data, this bias may extend to unpublished studies. The small number of trials volunteered by drug companies reinforces this concern.

While the authors concede that further comparisons of topical with oral non-steroidal anti-inflammatory drugs are required, their conclusion that topical agents are effective and safe is not supported by their paper. Furthermore, it gives no guidance on when these drugs should be used. Not only may this review give the wrong messages to prescribers but it may be used inappropriately to promote non-evidence based prescribing. Until data are published that compare these agents with other alternatives—such as paracetamol, other much cheaper rubefacients, and interventions such as rest, ice, compression, and elevation—their therapeutic role remains unclear. Without this evidence it is difficult to justify a large proportion of the £33 million spent on these drugs over the past year (Prescription Pricing Authority, data on file, Oct 1997).

Martin Duerden *Assistant medical director*
Stuart Barton *Medical director*
Elaine Johnstone *Senior pharmacist, MeReC Publications*
Kirsty MacLean *Pharmacist, MeReC Publications*
Jonathan Underhill *Pharmacist, MeReC Publications*
National Prescribing Centre, The Infirmary, Liverpool L69 3GF

Tom Walley *Professor of pharmacology and therapeutics*
University of Liverpool, Liverpool L69 3GF

1 Moore RA, Tramer MR, Carroll D, Wiffen PJ, McQuay HJ. Quantitiative systematic review of topically applied non-steroidal anti-inflammatory drugs. *BMJ* 1998;316: 333-8. (31 January.)
2 McQuay H. Placebo mania. *BMJ* 1996;313:1008.
3 Topical non-steroidal anti-inflammatory drugs: an update. *MeReC Bulletin* 1997;8:29-33.
4 Gøtzsche PC. Methodology and overt and hidden bias in reports of 196 double-blind trials of nonsteroidal antiinflammatory drugs in rheumatoid arthritis. *Control Clin Trials* 1989;10:31-56.

Authors' reply

EDITOR—Duerden et al at the National Prescribing Centre reject our findings on topical non-steroidal anti-inflammatory drugs. In August 1997 their *MeReC Bulletin* concluded that "this high level of prescribing [of topical non-steroidal anti-inflammatory drugs] is still not justified." That conclusion was not based on a systematic review of literature, explicit inclusion and exclusion criteria, or explicit existing definitions of efficacy of treatment. Our review was.

Duerden et al confuse two issues—namely, whether topical non-steroidal anti-inflammatory drugs work and whether prescribing them is appropriate. On the basis of information from over 10 000 patients we can say that these drugs work. There is no evidence that pain from different acute injuries or chronic rheumatic conditions reacts differently to different treatments. If we kept splitting studies by condition of pain, sex, race, or some other variable, then our knowledge would be relevant for ever smaller groups of patients.

The credibility of MeReC's advice on the appropriateness of prescribing will be diminished if that advice is perceived to be driven by cost rather than by evidence. Duerden et al ask for topical non-steroidal anti-inflammatory drugs to be compared with other (cheaper) rubefacients and rest. At the moment the evidence is stronger for topical non-steroidal anti-inflammatory drugs. We could find no recent trials of rubefacients or rest, ice, compression, and elevation. The literature on oral paracetamol in arthritic pain is sparse.

It is not our responsibility as reviewers to provide advice on prescribing. Those whose responsibility it is need to be scrupulously careful about the evidence they use in formulating their advice. Duerden et al disparage our review by claiming (wrongly) that it offends against rules of evidence. At the same time they are prepared to recommend (cheaper) alternatives for which there is little, if any, evidence.

We have reviewed the world's literature on topical non-steroidal anti-inflammatory drugs; comparisons with paracetamol or rest, ice, compression, and elevation do not exist. That helps to define a research agenda. In the meantime, prescribing advisers should avoid taking pot shots at the messenger just because they don't like the message.

R A Moore *Consultant biochemist*
M R Tramer *Research fellow*
D Carroll *Senior research nurse*
P J Wiffen *Regional pharmaceutical adviser*
H J McQuay *Clinical reader in pain relief*
University of Oxford, Pain Relief Unit, Churchill Hospital, Oxford OX3 7LJ

Adequate pain relief is important in non-malignant conditions

EDITOR—All doctors must recognise the importance of adequate pain relief for non-malignant conditions,[1] to which exactly the same principles apply as in the relief of malignant pain. There seems to be widespread reluctance to treat non-malignant pain with opiates, and yet surely pain is pain and deserves treating; this means giving whatever dose of whatever analgesic is required to relieve it.

There is no reason to withhold opiates if milder analgesics are not helping, and there are good reasons to give them if this makes for comfortable, alert patients who are less distressed and more able to mobilise themselves and cooperate with physiotherapy. Pain relief enables patients to breathe more deeply after thoracotomy and to expectorate well, and they are therefore less likely to develop chest infections. People with fractures that cannot be immobilised suffer severe pain and need opiates to cope. Patients with severe congestive cardiac failure will be much less distressed and dyspnoeic if given a small but regular dose of oral morphine, and I have never experienced a problem with respiratory depression. I have treated patients with "terminal" disease who have recovered and gone home because their symptoms were relieved.

The vital thing in management is to give the correct dose (titrated carefully against symptoms) and to give it regularly. The dose in a frail elderly patient may need to be only 1 mg or 2 mg of oral morphine but it must be given four hourly because oral morphine is short acting. In some patients more will be needed because the correct dose is highly individual and there is wide variation, but many doctors do not realise that a tiny dose is sometimes just enough for a frail old person, especially if they are accustomed to dealing with younger patients with malignancies. A laxative will also be needed and should be written up from the beginning. I have never had problems withdrawing morphine when the symptoms abate, the fracture heals, or the cardiac failure is relieved.

I would beg colleagues not to deny pain relief to patients with non-malignant conditions, which can be so distressing and from which most of us will die.

Lesley A M Northcote *Retired consultant physician in the care of the elderly*
East Purlands, Dashwood Lane, Bicknoller, Taunton TA4 4EQ

1 O'Brien T, Welsh J, Dunn FG. ABC of palliative care: Non-malignant conditions. *BMJ* 1998;316:286-9. (29 January.)

UK blood donation needs reorganisation

EDITOR—Fifty years after the start of the National Blood (Transfusion) Service collection of blood from volunteers in the United Kingdom still takes place predominantly in church halls and community centres, uses an archaic assessment of haemoglobin concentration (the copper sulphate test), and sees fleets of pantechnicons trundling many miles across the countryside. The collection service mainly operates from Monday to Friday, and each team's period of productive blood collection is perhaps four hours a day. Despite this, most hospitals have no permanent National Blood Service presence and act as users of blood but not as suppliers.

The service has recently produced a patient information leaflet outlining the risks of blood transfusion, which it recommends that most patients who need transfusion should receive.[1] The leaflet offers patients the possibility of predepositing blood for transfusion should this be needed after elective surgery. This is not a new procedure but has been introduced haphazardly. In a few areas the National Blood Service has taken the lead, but elsewhere it has been left to local initiatives, and for most hospitals the necessary funding has not been forthcoming. Haematologists have been left to reassure patients of the relative safety of homologous blood while discouraging their colleagues from unnecessary use of a potentially hazardous material. This may not be an argument that we can sustain without being able to offer autologous transfusion to patients who might reasonably benefit from it.

Surely the time has come for a radical rethink of blood collection in the United Kingdom. The service should have collection centres in all district general hospitals and should have much more flexibility to collect blood from donors at times to suit people who work. Autologous predeposit could then run alongside, with the reassurance for both groups of donors that adequate testing can take place and medical support facilities are close at hand if needed. There would also be the scope to increase the pool of aphaeresis donors, and therapeutic aphaeresis could be done at many more hospitals. The hospital haematologist would become an integral part of the transfusion service and not just a user and go between.

Frank Booth *Consultant haematologist*
Haematology Department, Torbay Hospital, Torquay TQ2 7AA

1 National Blood Service. *Your questions about blood transfusion answered.* London: NBS, 1997.

All members of primary care team are aware of importance of evidence based medicine

Editor—McColl et al present findings about the attitudes towards evidence based medicine of general practitioners in Wessex, but they lack information from other members of the primary care team.[1] Comprehensive evidence based practice will require the involvement of all members of staff. As part of a baseline needs assessment before the implementation of a computer network project we carried out a postal survey of general practices that participated in undergraduate medical education in east London in June 1997. Questionnaires were completed by practice nurses, health visitors, practice managers, and reception staff as well as general practitioners. We received questionnaires completed by 40 (68%) of the 59 practices (129 general practitioners, 44 nurses and health visitors, and 24 practice managers and receptionists). This provided an initial view of evidence based medicine among other members of practice staff.

All the primary care team was aware of the importance of evidence based medicine for the daily management of patients' problems (table). As in Wessex, there was little use and awareness of electronic sources of data. Other sources of information about evidence, however, were used frequently: all members of the team consulted colleagues and experts in the field. We found a considerable discrepancy between the importance given to understanding statistical concepts in medical literature and confidence in these concepts. Practice nurses and health visitors thought the use of research was important in patient care. Half, however, had never heard of Medline, half had never received any training in literature searches, and only a fifth expressed confidence in their understanding of statistical concepts when reading medical literature. This indicates that, at least in east London, more education in the basic principles of evidence based medicine is needed. We have since conducted training workshops, making efforts to include all members of the primary care team.

Consultation with colleagues and experts is currently regarded as an important means of accessing information. We agree with McColl et al that access to local practitioners skilled in evidence based principles should be encouraged. Our workshops have targeted core practices involved in undergraduate teaching, where practice staff are well placed to promote evidence based practice.

Nicola Hagdrup *Clinical lecturer*
Maggie Falshaw *Research coordinator*
Richard W Gray *Research assistant*
Yvonne Carter *Professor*
Department of General Practice and Primary Care, St Bartholomew's and the Royal London School of Medicine and Dentistry, London, E1 4NS

1 McColl A, Smith H, White P, Field J. General practitioner's perceptions of the route to evidence based medicine: a questionnaire survey. *BMJ* 1998;316:361-5. (31 January.)

Responses to questions on evidence based medicine by role in practice. Figures in parentheses are percentages

Response	General practitioners (n=129)*	Practice nurses and health visitors (n=44)*	Practice managers and receptionists (n=24)*
Thought research important in patient care	114 (90)	43 (98)	10 (75)
Thought research important in planning services	118 (93)	43 (98)	19 (53)
Had not heard of Medline	24 (20)	18 (49)	9 (50)
Never accessed electronic information	38 (29)	16 (36)	6 (25)
Did electronic literature search more than once a year	50 (42)	13 (32)	4 (23)
Thought statistical concepts important	101 (80)	21 (47)	13 (72)
Was confident about statistical concepts	39 (30)	9 (20)	5 (25)
Had received training in literature search	43 (33)	22 (52)	3 (14)
Source of information about evidence:			
Consulted colleagues ⩾ weekly	98 (76)	31 (79)	13 (76)
Consulted expert ⩾ monthly	117 (91)	38 (86)	16 (84)
Consulted journals ⩾ monthly	123 (95)	43 (100)	15 (88)

*Responses were missing for some questions: median of two responses missing/question for general practitioners and for practice nurse and health visitors, and five responses missing/question for practice managers and receptionists.

Extraintestinal disease may be associated with Crohn's disease

Editor—A Grand Round discussed a boy who presented with cervical adenitis due to *Mycobacterium paratuberculosis* and later developed symptoms typical of Crohn's disease.[1] This sequence of events seemed unlikely to be unique; we therefore reviewed the full general practice medical records of 21 patients with Crohn's disease and 21 controls (matched for age, sex, and first letter of the surname) attending Sawston medical practice, a semirural practice of 12 500 patients.

Of the patients with Crohn's disease, 11 had histories consistent with a metastatic infectious disease. Five presented with cervical lymphadenopathy. In one woman "TB glands of the neck" had been diagnosed clinically at the age of 6 and treated with antituberculous treatment for a year; at 21 she had diarrhoea and weight loss and was found to have proctitis with indeterminate histological findings; at 23 she had a sterile abscess involving cervical glands and investigation for tuberculosis yielded negative results; and at 38 a white cell scan showed ileitis and a barium enema gave results typical of Crohn's disease. Two patients who had enlarged cervical glands removed in childhood developed Crohn's disease in adult life, and two others had unexplained cervical lymphadenopathy preceding the diagnosis of Crohn's disease. Two patients had enlarged axillary and inguinal glands. Three patients had sterile abscesses (one ischiorectal, one in inguinal nodes, and one labial with a discharge that contained acid fast bacilli, which failed to grow on culture). One patient had a granulomatous supralaryngeal lesion, which progressed to a stricture and defied diagnosis despite his Crohn's disease.

In the records of the controls there were two references to unexplained lymphadenopathy, but no sterile abscesses or granulomatous lesions were recorded.

These findings indicate that extraintestinal disease consistent with metastatic infection occurs more commonly in association with Crohn's disease than has been recognised and may precede the onset of gastrointestinal symptoms by many years. The frequency of disease in cervical lymph nodes suggests that the source of the organism was ingested—probably milk—as was previously the case in tuberculosis, with a long latent period and metastatic potential. We conclude that our findings lend support to the hypothesis that in some patients "Crohn's disease" is due to mycobacterial infection.

Joanna Barnes *General practitioner*
Sawston Medical Practice, Sawston, Cambridge CB2 4LB

Nick Barnes *Consultant paediatrician*
Addenbrooke's Hospital, Cambridge CB2 2QQ
nickdelano@aol.com

1 Hermon-Taylor J, Barnes N, Clarke C, Finlayson C. Mycobacterium paratuberculosis cervical lymphadenitis followed five years later by terminal ileitis similar to Crohn's disease. *BMJ* 1998;316:449-53. (7 February.)

Terminally ill patients treated in the community should keep a copy of their records

EDITOR—Barclay et al remind us of the importance of continuity of care for terminally ill patients and of the difficulty of reconciling this with the increasing tendency of general practitioners to work in cooperatives.[1] The situation could be improved if general practitioners were better about handing information over to cooperatives and if there was better communication between doctors.

One way to improve communication is to give patients copies of their records. For over a year, patients seen by our hospital's palliative care team who are returning to the community are given a "shared care record." This record contains information about the patient's diagnosis (using words that have been used in consultation and with the patient's agreement), recent treatment (such as operations and their date or palliative radiotherapy treatments with site and date) and any relevant investigations (such as serum concentrations of calcium). There is also space for brief comments to be written to summarise a consultation. For the patient's benefit there is a list of relevant professionals and their telephone numbers.

The record is only useful if all professionals involved in the patient's care use it; so far community specialist palliative care nurses and some district nurses have used it more consistently than general practitioners. However, when used as intended it allows for up to date communication between professionals and might be a way forward for general practitioners working in cooperatives.

Jo Chambers *Consultant in clinical oncology and palliative medicine*
Southmead Health Services, Southmead Hospital, Bristol BS10 5NB

1 Barclay S, Rogers M, Todd C. Communication between GPs and cooperatives is poor for terminally ill patients. *BMJ* 1997;315:1235-6. (8 November.)

Care models for discharged psychiatric patients

Community based care is superior to conventional care

EDITOR—Tyrer et al's conclusion that aftercare for psychiatric patients with severe mental illness by community teams has a similar outcome to that by hospitals is surprising until one appreciates the rudimentary form of community intervention that they used in the study.[1] The two methods of follow up they compared seem to have many similarities, except that the community follow up was provided by a team based outside the hospital. This is not really community treatment—two styles of intervention were compared that were not distinct in terms of the care and treatment given to the patients. This may be why Tyrer et al found no substantial difference in outcome between the two approaches. Tyrer himself has recently described this kind of community treatment as profligate and little short of disastrous.[2]

Community based care is superior to conventional care in cost benefit terms if the treatment is similar to assertive community treatment.[3 4] Tyrer et al, however, analysed a type of community treatment that can hardly be distinguished from conventional hospital based follow up. Their conclusion that community based teams for severely mentally ill patients offer no advantage is misleading unless the type of care offered in the community is a diluted version of approaches that are being implemented elsewhere with considerable clinical benefits.[5]

Tyrer et al's observation that the costs of mental health care in the outer London area exceed those in inner London—which has more beds—is not surprising. As there is no comprehensive and integrated system of community care there will inevitably be a continued reliance on hospital beds. When an area does not have enough hospital beds there will be a demand for extracontractual referrals elsewhere, and the costs are bound to rise. This is surely a result of an absence of community care, which contributes to the pressures of escalating costs in relation to inpatient care. The lack of alternatives for crisis situations in both study areas that Tyrer et al describe is evident from the finding that 74% of the community group and 87% of the hospital group required readmission to hospital within 12 months. The need to develop alternative strategies to routine admission—for example, home treatment—is pressing. If there is no integrated community care programme the costs associated with mental health care will increase. An approach without a specialised focus to the management of severe mental illness in the community offers few advantages, a finding that is already well established and even described as dubious practice.[3]

S P Sashidharan *Professor of community psychiatry*
Marcellino Smyth *Consultant psychiatrist*
University of Birmingham, Academic Unit, Northern Birmingham Mental Health Trust, Birmingham B23 7 AL

1 Tyrer, P, Evans K Gandhi N, Lamont A, Harrison-Read P, Johnson T. Randomised controlled trial of two models of care for discharged psychiatric patients. *BMJ* 1998: 316:106-9.
2 Tyrer P. Cost-effective or profligate community psychiatry? *Br J Psych* 1998,172:1-3.
3 Scott JE, Dixon LB. Assertive community treatment and case management for schizophrenia. *Schizophr Bull* 1995:21:657-68.
4 Marshall M, Gray A, Lockwood A, Green R. Case management for people with severe mental disorders. In: Adams C, Anderson J, De Jesus Maris J, eds. Schizophrenia module of the Cochrane database of systematic reviews. *The Cochrane Library*. Cochrane Collaboration; 1997, Issue 3. Oxford: Update Software; 1997. (Updated quarterly.)
5 Thompson KS, Griffith EH, Leaf PJ. A historical review of the Madison model of community care. *Hosp Community Psychiatry* 1990;41:625-33.

Authors' reply

EDITOR—Sashidharan and Smyth say that we practise rudimentary community psychiatry in our services and that this accounts for our findings of increased bed use. Our form of community treatment—which has higher case loads than the 10-15 patients per key worker recommended in assertive community therapy—has already been shown to be effective in reducing the use of hospital beds,[1] increasing the satisfaction of referrers,[2] and reducing the costs of treatment.[3]

As we reported in our paper, the cost of community psychiatric services for patients allocated to community care programmes was over four times that for patients allocated to hospital programmes. This included 22 times and 36 times the number of contacts with community nurses and other non-nursing staff (including doctors) respectively, and most of these visits took place at home. Our study shows that even well funded community teams for mental health care cannot always reduce the use of inpatient beds, although the target of reduced admissions can be achieved. Once a hospital relies on extracontractual referrals and this has resulted in a diaspora of admissions to other hospitals (extending over an area of 1000 square miles for most psychiatric units in London), no amount of assertive community treatment can rescue integrated care.

This is particularly relevant for the most seriously ill patients in psychiatric services, who spend long periods in hospital because of their special needs. This group—which, in the case of schizophrenia, accounts for all but 3% of the cost of care for the condition[4]—is not normally taken on by those practising assertive treatment. In our study the entry criteria meant that all patients recruited were in this "heavy user" group and therefore would be expected to need more inpatient care.

Our message to all those involved in the quest for bedless psychiatry is simple. Assertive community treatment reduces, but does not remove, the need for inpatient beds; it also emphasises the importance of integrating not only community care (as Sashidharan and Smyth suggest) but also hospital and community care to reinforce the value of both in a comprehensive psychiatric service. When a certain threshold has been reached (which, depending on the social needs of the area, is probably 0.25-0.5 beds per 1000 head of population) the benefits of assertive care are more than outweighed by the handicaps of bed shortages, dislocated care, and escalating costs, and we believe that even the team that runs the service in North Birmingham would buckle under this strain.

Peter Tyrer *Professor of community psychiatry*
Phil Harrison-Read *Consultant psychiatrist*
Tony Johnson *Medical statistician*
Division of Neuroscience and Psychological Medicine, Imperial College School of Medicine, Paterson Centre, London W2 1PD

1 Merson S, Tyrer P, Onyett S, Lack S, Birkett P, Lynch S, et al. Early intervention in psychiatric emergencies: a controlled clinical trial. *Lancet* 1992;339:1311-4.
2 Puri BK, Hall AD, Reefat R, Mayer R, Tyrer P. General practitioners' views of an open referral system to a community mental health service. *Acta Psychiatr Scand* 1996;94:133-6.
3 Merson S, Tyrer P, Carlen D, Johnson T. The cost of treatment of psychiatric emergencies: a comparison of hospital and community services. *Psychol Med* 1996;26:727-34.
4 Davies LM, Drummond MF. Economics and schizophrenia: the real cost. *Br J Psychiatry* 1994;165:18-21.

Plans for future influenza pandemics must raise awareness of Reye's syndrome

EDITOR—Walker and Christie report that the index patient in the outbreak of avian influenza in Hong Kong died of Reye's syndrome.[1] Reye's syndrome was an important cause of death and severe neurological morbidity in the United States in the 1970s and early 1980s, particularly during influenza epidemics. Its incidence fell sharply after recognition of its association with aspirin and the introduction of public education and warning labelling on aspirin products.[2]

In the United Kingdom, surveillance of Reye's syndrome in children under 16 has been carried out by the British Paediatric Surveillance Unit of the Royal College of Paediatrics and Child Health since August 1981. A dramatic decline in reported cases and deaths has been observed since warning labelling was introduced for aspirin in 1986.[3] In the most recent complete surveillance year, to July 1997, the provisional total (seven) was the lowest ever recorded.

Although Reye's syndrome is still being reported, the clinical and epidemiological pattern has changed since 1986; most patients, especially those under 3, probably have unrecognised "Reye-like" inherited metabolic disorders.[2] Thus in the United Kingdom, as in the United States, the warnings against giving aspirin to children unless clinically indicated have had an important public health benefit. These warnings should be reinforced in any plans for future influenza pandemics.

Walker and Christie do not state whether the index patient in the outbreak in Hong Kong had taken aspirin. The United Kingdom health departments' plan for pandemic influenza includes reminding parents not to give aspirin to children under 12 who have symptoms of influenza.[4]

Does this go far enough? It is consistent with widely held perceptions about the age distribution of Reye's syndrome and with the wording of the current warning. Of 48 cases of the syndrome associated with aspirin reported to the Reye's syndrome surveillance scheme between 1984 and 1996, however, 14 were in patients aged over 12. Furthermore, adult Reye's syndrome is well documented and is probably underrecognised.[5] Plans for future influenza pandemics should include measures to raise diagnostic awareness of the syndrome at all ages, the enhancement of surveillance, and the provision of specialist management in intensive care units.

Susan Hall *Consultant epidemiologist*
Department of Paediatrics, Sheffield Children's Hospital, Sheffield S10 2TH

Richard Lynn *Scientific coordinator*
British Paediatric Surveillance Unit of the Royal College of Paediatrics and Child Health, London W1N 6DE

1 Walker E, Christie P. Chinese avian influenza. *BMJ* 1998;316:325. (31 January.)
2 Hardie RM, Newton LH, Bruce JC, Glasgow JF, Mowat AP, Stephenson JB, et al. The changing clinical pattern of Reye's syndrome 1982-1990. *Arch Dis Child* 1996;74:400-5.
3 Hall SM, Lynn R. Reye's syndrome. In: Verity C, ed. *British Paediatric Surveillance Unit 11th annual report.* London: Royal College of Paediatrics and Child Health, 1997.
4 Department of Health. *UK health departments' multiphase contingency plan for pandemic influenza.* London: DoH, 1997.
5 Ede RJ, Williams R. Reye's syndrome in adults. *BMJ* 1988;296:517-8.

Palliative care services for children must adopt a family centred approach

EDITOR—The child centred approach adopted in Goldman's article on the special problems of children with life limiting illnesses highlighted the specific needs of ill children that should be considered when a palliative care service is being developed.[1] While we agree that this approach is an important step in the development of palliative care, we would argue that any palliative care service should adopt a family centred approach, which considers the needs of each family member including the ill child. Goldman's article, although acknowledging the impact of the child's illness on the family, fails to set the needs of the ill child within the context of the family caring for him or her. We would argue that the needs of every family member are of equal importance to the needs of the ill child. The effects on parents recently highlighted by Mastroyannopoulou et al included high levels of depression, considerable effects on employment, and an impaired social life, set within a family environment characterised by high conflict and low support.[2] The impact on healthy siblings has also been highlighted.[3] Stallard et al reported that while 38% of well siblings were able to talk to their parents about the illness and 14% were able to talk to their grandparents, an alarming 48% did not talk to anyone about the illness. Healthy children reported constantly worrying about their ill sibling, with the predominant feeling being one of sadness. Parents, however, tended to underestimate the impact that the illness was having on well siblings.[2] The needs of all family members need to be addressed. Each person's needs should be individually assessed and responded to. Families need to be encouraged to talk openly together, and siblings particularly need to be given the opportunity to discuss the impact on them of having an ill child in the family. One way of ensuring that the needs of all the family are met is by developing a multidisciplinary team incorporating medical, nursing, and psychology professionals. By working together this team can provide a holistic service that can respond to the many and varying needs of the family throughout the child's illness and afterwards.

Linda Deeley *Clinical psychologist, lifetime service*
Paul Stallard *Clinical psychologist, child and family therapy service*
Mary Lewis *Paediatric community nurse, lifetime service*
Simon Lenton *Community paediatrician, child health department*
Royal United Hospital, Bath BA1 3NG

1 Goldman A. ABC of palliative care: Special problems of children. *BMJ* 1997;316:49-52. (3 January.)
2 Mastroyannopoulou K, Stallard P, Lewis M, Lenton S. The impact of childhood non-malignant lifethreatening illness on parents: gender differences and predictors of parental adjustment. *J Child Psychol Psychiatry* 1997;38:823-9.
3 Stallard P, Mastroyannopoulou K, Lewis M, Lenton S. The siblings of children with life-threatening conditions. *Child Psychol Psychiatry Rev* 1997;226-33.

Television gives a distorted picture of birth as well as death

EDITOR—Crayford et al have analysed death rates in televised soap operas.[1] Similar, but less systematic, observations were made by Karpf a decade ago. Discussing American daytime soap operas, Karpf commented that "in 1977 there were only two cases of cancer on soap operas, neither of them fatal. … Instead they die by being hit by a truck, being pushed downstairs, being shot at, or tumbling out of aeroplanes. Homicide is the soap opera's number one killer … and women in soap operas often attempt suicide.[2] High external death rates thus seem to be a consistent and enduring hazard of soap opera life.

The way that death is portrayed in soap operas is but one of the many distorted images of health, illness, and health care given by television. I have undertaken some research on the way in which childbirth is portrayed on television.[3] My content analysis of 92 depictions of childbirth broadcast on British television during 1993 showed unrealistically high maternal and perinatal mortality, which echoed Crayford et al's findings. In the 92 births four babies and one mother died and a further five babies and four mothers experienced life threatening complications. Labour was portrayed as being a quick and unpredictable process, with the speed of labour resulting in an unexpected event (giving birth in an unexpected place, without a professional caregiver, or without the intended companion present) in 22 of the 58 fictional births shown. The third way in which birth on television differed from birth in real life was in the low levels of analgesia used during labour, with inhalation analgesia, systemic narcotics, and epidurals being shown in only 7%, 3%, and 5% of the births respectively.

Crayford et al ask whether soap operas contribute to our distorted national perceptions of violence and death. The research evidence from sociology and media studies contains several studies indicating that television can affect viewers' perceptions and behaviour in some circumstances.[2] The view that television has a powerful, direct effect similar to that of a hypodermic needle has, however, been rejected. The effects of television are now seen as being more akin to those of an aerosol spray, with some of what is broadcast hitting its target, most of it drifting away, and little penetrating.[2] Further research may shed light just how penetrating television's distorted portrayals of birth and death are.

Sarah Clement *Lecturer*
Department of General Practice, Guy's and St Thomas's United Medical and Dental School, London SE11 6SP

1 Crayford T, Hooper R, Evans S. Death rates of characters in soap operas on British television: is a government health warning required? *BMJ* 1997;315:1649-52. (20-27 December.)
2 Karpf A. *Doctoring the media: the reporting of health and medicine.* London: Routledge, 1988.
3 Clement S. Childbirth on television. *Br J Midwifery* 1995;5:37-42.